



PATENT APPLICATION

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: :  
Kenichiro Sato et al. : Group Art Unit: 1623  
Appln. No.: 09/275,941 : Examiner: OH, TAYLOR V  
Filed: March 25, 1999 :

For: NOVEL (METH)ACRYLIC ACID ESTER COMPOUND

DECLARATION UNDER 37 C.F.R. §1.132

Assistant Commissioner for Patents  
Washington, D.C. 20231

Sir:

I, Kenichiro Sato, do declare and state as follows:

I am a citizen of Japan.

I graduated from Osaka University, Faculty of Engineering, Course of  
Applied Fine Chemistry in March 1992.

Since April 1992 I have been employed by Fuji Photo Film Co., Ltd. and  
have been engaged in research and development of photoresist photosensitive  
materials for semiconductors at the Yoshida-Minami Factory Research Division of  
the company.

I am a co-inventor of the invention described and claimed in the  
above-named application, and I am familiar with the subject matter disclosed by the  
application as well as the Office Action dated January 14, 2003 concerning the  
application.

In order to demonstrate the unexpected superiority of the present  
invention, the following experimentation was conducted by me or under my  
supervision.

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### EXPERIMENTATION

#### Synthesis of the resin using the monomer compound of the present invention (the monomer compound of claim 5)

9.2 of the monomer compound of claim 5 of the present invention, 250 mg of a radical polymerization initiator V-65 (manufactured by Wako Pure Chemical Industries, Ltd.) and 30 mg of mercaptoacetic acid were dissolved in a mixture of 29 g of N,N-dimethylacetoamide and 4 g of tetrahydrofuran. The mixture was then added dropwise with a drop time of 4 hours to 4 g of N,N-dimethylacetoamide heated to 60 °C, under a nitrogen atmosphere. The solution was heated and stirred over 4 hours and after the solution was cooled to a room temperature, the solution was charged into 1 liter of distilled water, and thus 8.9 g of the target resin was recovered in a white color powder form. The resin had a weight-average molecular weight of 16,000 in polystyrene conversion.

#### Synthesis of the resin using the monomer compound 2 of Makromol. Chem. 193(3), pp. 779 to 797 (Ahlheim et al)

The monomer compound 2 described at the top of page 781 of Makromol. Chem. 193(3) was prepared and then polymerization was attempt in the same conditions as the above. The monomer compound was unchanged as it was and recovered.

The results above are arranged in Table below.

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TABLE

|               | Monomer (g)                 | Resin (g) | Mw *   |
|---------------|-----------------------------|-----------|--------|
| Invention     | Monomer of claim 5 (9.2)    | 8.9       | 16,000 |
| Ahlheim et al | Monomer compound 2<br>(9.2) | —         | —      |

Mw \*: Weight-average molecular weight (in polystyrene conversion)

As is apparent from the results above, the monomer compound of the present invention can be polymerized to obtain a resin and enables to control a molecular weight of a resin. The monomer compound of Ahlheim et al that has a different structure from the monomer compound of the present invention cannot be polymerized and the resin cannot be obtained from the monomer. As is apparent from the above, the monomer compound of the present invention has a specified effect.

I declare further that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under §1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Respectively submitted,

Date: May 9, 2003

Kenichiro Sato

Kenichiro Sato